

CLAIMS

What is claimed is:

- 1 1. A light-emitting acoustic module, comprising:
2 a backing panel attachable to a support;
3 a light-diffusing, acoustically non-reflective cover
4 attached to the backing panel, at least a portion of the cover
5 being spaced apart from the backing panel to define a cavity
6 between the backing panel and the cover, the cover forming a
7 ceiling surface; and
8 a plurality of light-emitting elements disposed in the
9 cavity between the backing panel and the cover, the light-emitting
10 elements being operative to produce light diffusable through the
11 cover.
- 1 2. A light-emitting acoustic module according to claim 1, wherein
2 the cover is fabric.
- 1 3. A light-emitting acoustic module according to claim 2, wherein
2 the fabric cover is draped and/or stretched over the backing
3 panel.
- 1 4. A light-emitting acoustic module according to claim 1, wherein
2 the cover is made of a non-rigid material, and further comprising
3 a rigid spacing member disposed between the backing panel and the
4 cover maintaining separation therebetween.
- 1 5. A light-emitting acoustic module according to claim 4, wherein
2 the spacing member is a centrally disposed cylindrical sleeve.

- 1 6. A light-emitting acoustic module according to claim 4, wherein
2 the light-emitting elements are attached to the spacing member.
- 1 7. A light-emitting acoustic module according to claim 4, wherein
2 the spacing member has a central opening, and wherein the
3 light-emitting elements are disposed within the central opening of
4 the spacing member.
- 1 8. A light-emitting acoustic module according to claim 1, wherein
2 the cavity attenuates and traps sound.
- 1 9. A light-emitting acoustic module according to claim 1, further
2 comprising audio loudspeakers disposed in the cavity.
- 1 10. A light-emitting acoustic module according to claim 1, further
2 comprising a wireless network access point disposed in the cavity.
- 1 11. A light-emitting acoustic module according to claim 1, wherein
2 the cover is a rigid material.
- 1 12. A light-emitting acoustic module according to claim 11,
2 wherein the cover includes small perforations to provide for sound
3 entry.
- 1 13. A light-emitting acoustic module according to claim 11,
2 wherein the cover includes integrated phosphor pigments so as to
3 be excited by the lighting elements and emit light.
- 1 14. A light-emitting acoustic module according to claim 1, wherein
2 the lighting elements are located on the backing panel.

1 15. A light-emitting acoustic module according to claim 1, wherein
2 the light-emitting elements include at least one array of
3 light-emitting diodes (LEDs).

1 16. A light-emitting acoustic module according to claim 15,
2 wherein the LEDs include organic LEDs (OLEDs).

1 17. A light-emitting acoustic module according to claim 15,
2 wherein the LEDs include high brightness LEDs (HBLEDs).

1 18. A light-emitting acoustic module according to claim 15,
2 wherein at least two arrays of light-emitting diodes are included,
3 a first array being centrally located and a second array being
4 disposed about the first array and spaced apart therefrom.

1 19. A light-emitting acoustic module according to claim 1, wherein
2 the cover is made of a woven material.

1 20. A light-emitting acoustic module according to claim 19,
2 wherein the woven material incorporates metallic light-reflective
3 fibers.

1 21. A light-emitting acoustic module according to claim 1, wherein
2 the backing panel is planar and edge-suspendable so as to be
3 usable in a hung ceiling system.

1 22. A light-emitting acoustic module according to claim 21,
2 wherein the edges of the backing panel have a stepped
3 configuration for overlapping the edges of adjacent modules when
4 installed in the hung ceiling system.

1 23. A light-emitting acoustic module according to claim 1, wherein
2 the backing panel includes mounting features disposed on a rear
3 surface thereof for attaching the backing panel to the support.

1 24. A light-emitting acoustic module according to claim 23,
2 wherein the mounting features are configured to allow for a
3 cluster of multiple similar modules to be mounted in overlapped
4 fashion.

1 25. A light-emitting acoustic module according to claim 24,
2 wherein the backing panel in each of the modules of the cluster is
3 planar and oval.

1 26. A light-emitting acoustic module according to claim 1, wherein
2 the backing panel is planar and rectangular.

1 27. A light-emitting acoustic module according to claim 26,
2 wherein the backing panel is square.

1 28. A light-emitting acoustic module according to claim 1, wherein
2 the backing panel is planar and oval.

1 29. A light-emitting acoustic module according to claim 1, wherein
2 the backing panel is planar and round.

1 30. A light-emitting acoustic module according to claim 1, wherein
2 the light-emitting elements comprise color-changing solid state
3 lighting elements.

1 31. A light-emitting acoustic module according to claim 30,
2 wherein the color-changing solid state lighting elements comprise
3 stacked red-green-blue (RGB) light-emitting diode (LED) chips.

1 32. A light-emitting acoustic module according to claim 30,
2 wherein the solid-state lighting elements are controllable via
3 analog electronics.

1 33. A light-emitting acoustic module according to claim 30,
2 wherein the solid-state lighting elements are controllable via
3 digital electronics.

1 34. A light-emitting acoustic module according to claim 33,
2 wherein the digital electronics are hardwired to the solid-state
3 lighting elements.

1 35. A light-emitting acoustic module according to claim 33,
2 wherein the digital electronics are wirelessly coupled to the
3 solid-state lighting elements.

1 36. A light-emitting acoustic module according to claim 1, wherein
2 the light-emitting elements comprise fluorescent lamps.

1 37. A light-emitting acoustic module according to claim 1, wherein
2 the backing panel is acoustically absorbent.

1 38. A light-emitting acoustic module according to claim 1, wherein
2 the backing panel and cover have respective openings for
3 permitting passage of a sprinkler head when the module is
4 installed in a ceiling.

1 39. A light-emitting acoustic module according to claim 1, wherein
2 the light-emitting elements are disposed on a sub-assembly that is
3 installable separately from the remainder of the module.

1 40. A light-emitting acoustic module according to claim 1,
2 wherein the cover is removably attached to the backing panel to
3 permit access to the cavity of the module when installed in a
4 ceiling.